Finding the Knowledge Edge

Using Knowledge Management Afloat to Give the Warfighter a Knowledge Edge

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The Knowledge Edge

Knowledge is power. The old adage is true in the business world as well as in the military. Intelligence about our adversaries, our battlespace and ourselves is critical to succeeding in any military operation. To continue to dominate the maritime battlespace, the U.S. Navy must find a competitive edge — a *knowledge edge* — that will allow our forces to exploit our asymmetric advantages over our adversaries.

Carrier strike groups (CSG) and expeditionary strike groups (ESG) are expected to accomplish a wide range of tasks including: conducting inland time-sensitive strikes, maritime interdiction operations, defense of national borders, ensuring the free flow of commerce on the high seas, regional engagement and information operations.

These missions are being accomplished with fewer platforms in all corners of the globe. The new Fleet Response Plan (FRP) dictates longer periods of readiness and greater flexibility in deployments to meet national needs. For today's naval leaders, operating in these conditions requires leveraging all available resources at the right time and in the right place.

To this end, a "toolkit" available to the naval warfighter is knowledge management (KM) afloat. When properly employed, KM gives the warfighter a decisive advantage or knowledge edge, an ability to sharpen processes, maximize the use of information technology and exploit the knowledge, skills and experience of our people.

KM is no longer just a concept. Employing KM afloat presents challenges different than many other areas of the Navy enterprise. The Navy's Information Professional (IP) Officer Community is currently delivering officers to the fleet who are trained with critical knowledge sharing skills.

During a recent deployment in support of the global war on terrorism, the Harry S. Truman (CVN 75) Strike Group successfully employed these concepts and techniques to improve planning and situational awareness of the environment as the expeditionary strike force commander in the Arabian Gulf.

The Harry S. Truman (HST) Strike Group was responsible for a CSG and two ESGs. By coupling an operational focus with KM techniques, strike group processes, such as planning, information flow, watchstander turnover and mission transfer between units, were enhanced to be more agile and streamlined.

Enter the KMO

The knowledge management officer (KMO), an IP, provides a unique perspective and skill set to the strike group commander. To succeed, KMOs must be self-motivated and proactive. They must be well-versed in command, control, communications, computers and intelligence (C4I) systems, skilled in information management (IM) techniques, have operational experience in naval warfare, and be able to think strategically.

KMOs must have a working knowledge about change management theories and techniques and have the ability to understand process change implications that cross functional lines. Because each strike group is unique, each tour will be unique with new challenges. At all times, the KMO must keep the perspective of how each process or knowledge flow enables improved command and control or better decision-making. Initiatives they champion must provide obvious value to the watchstander, planner and deckplate Sailor.

Today's naval warfighter is faced with an onslaught of information. The perception is that more information equates directly to more knowledge. This is a fallacy. Tactical watchstanders are faced with information and task overload. Tactical action officers are monitoring a dozen or more chat rooms on U.S. and coalition networks, four or more voice nets, a half-dozen tactical displays, a handful of phones, message traffic and e-mail!

The rate of information exchange exceeds the ability of tactical watchstanders to recognize, process and integrate information to formulate actionable knowledge in the context of the tactical situation.

> ***"Fourth generation warfare demands cooperative engagement and tactical agility. You cannot go it alone, and you must be highly responsive. To succeed, you must share knowledge and provide situational awareness in a concise and effective manner to be agile enough to respond to 21st century threats. Knowledge management is the core capability that enables the warfighting effectiveness and responsiveness of the flexible joint multi-national task forces."***
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> ***Rear Adm. Michael Tracy***
> ***Commander, Expeditionary Strike Force Five***

This flood of information with current IM methods does not enhance the watchstander's knowledge inventory.

KM systematically brings together people, processes and technology to facilitate the exchange of operationally relevant information. We can improve this knowledge inventory through employment of KM techniques to refine processes, establish more effective business (watchstanding) rules, and innovate our use of existing technology to better frame and alert the watchstander to timely and relevant information.

New technologies to filter out "noise" and deliver operationally pertinent information are required to further enhance the situational awareness and understanding of the warfighter. FORCEnet initiatives, such as the Trident Warrior experimentation series must continue to focus on the dimension of enhancing situational awareness and understanding. In the near term, executing a robust KM afloat strategy will set us on the right course to manage information overload, spark innovation and grow the warfighter's knowledge inventory.

Step 1: Get Leadership "Buy-In"

To have successful KM and achieve the knowledge edge, the KMO's relationship with the commander, the chief of staff and the operations officer must be well-defined. Leadership buy-in for KMO-led initiatives is a prerequisite for success and leaders are the key to keeping the strike group staff operating at peak efficiency.

As these relationships mature, the KMO must also build relationships with warfare commanders, commanding officers and operations officers because afloat KM must serve all of their needs. The outcome and benefit of KM must be aligned with the commander's objectives and understood as providing value-added for all players.

The focus here is for the KMO to develop initiatives with tangible products useful in the tactical domain. *The bottom line is: The KMO must coach and deliver operationally relevant products to strike group leadership.*

Step 2: IM before KM

Let's face it, information management does not sound as fascinating as knowledge management. A lot of what today's KMOs must do is really IM and not KM.

Vision

The Navy will employ Knowledge Management to achieve Knowledge Dominance, resulting in:

– A warfighting force empowered with accurate, timely and relevant information
– A culture of innovation, knowledge sharing and organizational learning
– Projection of decisive warfighting capability across naval, joint and coalition domains

Fleet Knowledge Management 2003 Working Group Tactical Challenges

The tendency for the inexperienced KMO and eager-for-results commander is to move directly to a KM initiative and discount the need to address information management issues.

IM involves working in the trenches and spending time identifying seemingly minor solutions to real problems faced by staff and operators alike. The Navy and Department of Defense (DoD) have fielded a collection of information technology (IT) with the goal of improving efficiency, speeding information transfer and saving manpower. KMOs must partner with the ship's IT department and be champions for more effective and innovative use of the IT tools employed by the strike group to find ways to promote proper IM.

By establishing policy through IM operation tasks (OPTASKs) and by identifying timesaving techniques, the KMO can make a near-term and positive impact on strike group operations. A simple thing, such as disciplined management of file sizes or alternate file formats for information posted to strike group Collaboration at Sea (CAS) systems can make a major difference to the officers and crew of a bandwidth-limited destroyer or frigate.

This may not be a big deal to shore staffs, but afloat it can be the difference between sharing information and possibly having no information at all.

Finding new ways to share information is another IM technique that enhances operations. The commander's ability to share information with staff so they can better understand the commander's intentions and improve situational awareness is the articulation of KM afloat.

This shared situational awareness allows better synergy in making time-critical decisions and assists in eliminating the knowledge seams between decision makers who are not collocated.

The Harry S. Truman Strike Group KMO was empowered to be the "IM cop" and was able to enforce the information management plan. The IM plan emphasized policies on the approved techniques and procedures for the information technologies common within the strike group.

The IM plan must be more than mere words on paper. The KMO must market the advantages to the staff, key stakeholders and other information brokers, so they understand the benefits of proper IM. With hard work early in the process, the KMO can build self-sustaining IM processes and procedures, which will later become a matter of efficient routine.

Step 3: Maximize Knowledge Flow

Once the IM house is in order, the KMO should focus on evaluating strike group processes and confirming they are well aligned. An early quick-win to improve the effectiveness of operational planning is to examine the strike group battle rhythm. Often there are overlaps or gaps in battle rhythm events.

By focusing on the strategic perspective, the KMO can recommend battle rhythm refinements that increase the effectiveness of the planning cycle and mission execution. This proved to be quite effective for the HST Strike Group for reducing redundant meetings and reports, which were not in sync with the operational tempo.

Organizational alignment is another area where the KMO can improve knowledge flow within the strike group. Identifying proper roles for liaison officers or alignment of staff personnel can be critical.

"Second patrol under the auspices of CTF 50/152 was characterized by more clear and smoothly directed tasking … lines of communications on CENTRIXS are revealed and more clear," said the commanding officer of the Royal Netherlands Navy frigate, HNLMS Tjerk Hiddes.

North Atlantic Ocean (July 12, 2004) - The USS La Salle (AGF 3), the Dutch frigate HNLMS Jacob Van Heemskerck (F812) and submarine tender USS Emory S. Land (AS 39) steamed together in the Atlantic Ocean while participating in Majestic Eagle 2004. The Majestic Eagle, a multinational exercise, was conducted off the coast of Morocco. The exercise demonstrated the combined force capabilities and quick response times of the participating naval, air, undersea and surface warfare groups. The NATO-led exercise included the United Kingdom, Morocco, France, Italy, Portugal, Spain and Turkey. U.S. Navy photo by Photographer's Mate Airman Josh Kinter.

The KMO can often suggest a plan for improvement by interviewing those involved in a process and identifying the corporate knowledge in an organization.

In some cases, a formal organizational change might not be the right answer. A community of practice (COP), a collaborative group with a common purpose or goal, can be established and with routine activity can improve knowledge sharing by honing processes which would not have been possible without combined networking.

An example of a COP used during our deployment was bringing together a group of coalition operators and technicians to solve the issue of regional nation communications between the United States and Gulf Cooperative Council nations. The end results were secure communications and standard operating procedures between navies and supporting shore facilities.

The KMO observes many best practices throughout the strike group. A key element of success is for the KMO to identify, collect, measure and market these best practices. Best practices should then be shared and employed within the strike group to improve overall knowledge flow and process efficiency. They should also be passed along to relieving strike groups and training strike groups. Sharing innovation and KM initiatives maximizes the return for warfare commanders and strike group leadership.

Step 4: The Coalition Domain

KM is equally important in coalition operations. Our allies and coalition partners are a critical piece in fighting the global war on terrorism and providing for our mutual defense. By applying the same IM and KM principles developed during the Fleet Readiness Training Plan workup cycle to the coalition arena, the HST Strike Group was able to effectively and efficiently relay the commander's intentions and scheme of maneuver to our coalition partners.

Until recently the U.S. Naval Forces Central Command (NAVCENT) maritime infrastructure did not support a cohesive information sharing environment. There were multiple systems in place, but nothing that reached all the maritime partners. The Combined Enterprise Regional Information Exchange System (CENTRIXS) is now that medium. It is an essential command and control system for maritime operations in the 5th Fleet area of operations. It was fielded as the primary method of planning, collaborating and controlling all coalition and U.S. forces.

Ensuring that our coalition partners have visibility of the commander's intentions, maritime tasking, scheme of maneuver and conditions within the operational environment is crucial to the success of our coalition. The new CENTRIXS enclave, the Combined Naval Forces U.S. Central Command (CNFC), contains similar collaborative tools employed with SIPRNET.

By using best practices from the SIPRNET environment, the HST Strike Group was able to quickly improve the processes and procedures in the coalition domain. A new coalition IM plan was drafted, which proved instrumental in setting responsibilities for content management, content input and established a level of expectation management. Redundant CAS databases were consolidated and routinely refreshed.

The results were improved information sharing and situational awareness among the operating forces. Many operations would not have been as successful without the use of the new tools because they greatly improved command and control.

Several success stories in this enclave include the use of CNFC chat to collaborate with Australian assets during a tense boarding operation. Pakistani and Italian liaison officers acknowledged they easily found needed information in a central repository on the CTF 50/152 CNFC Web site upon arrival in theater. With this type of cooperation between the coalition partners, true information sharing is enabled.

Step 5: Put Corporate Memory to Work

After meeting the IM and baseline KM challenges head on, systematic processes must be put in place for corporate memory to be kept alive and prosper.

Corporate memory is the collective knowledge base of the organization. It is inherent not only in the instructions, briefs and other documents of the organization, the explicit knowledge, but also in the unstructured or tacit knowledge resident

The KMO's Task List

√ Construct relationships and develop initiatives with tangible products useful to the tactical domain

√ Establish information management policy through IM OPTASKs and other timesaving techniques

√ Build a routine and reliable conduit for collaboration; exploit the strengths of coalition partners

√ Make a best practices repository based on explicit knowledge derived from past and present activities

√ Fill knowledge gaps in the organization

Atlantic Ocean (July 18, 2004) - USS Harry S. Truman (CVN 75) Carrier Strike Group (HSTCSG) deployed Oct. 13, 2004, in support of the global war on terrorism. Commanded by Rear Adm. Michael Tracy, commander, Carrier Strike Group 10, HSTCSG included the Norfolk-based aircraft carrier Harry S. Truman with its embarked air wing, Carrier Air Wing (CVW) 3, the Norfolk-based guided-missile cruiser USS Monterey (CG 61), the Norfolk-based guided-missile destroyers USS Barry (DDG 52) and USS Mason (DDG 87), the Groton, Conn.-based fast-attack submarine USS Albuquerque (SSN 706) and the combat logistics ship USNS Arctic (T-AOE 8) from Naval Weapons Station Earle, N.J. U.S. Navy photo by Photographer's Mate Airman Ryan O'Connor.

within the individuals who make up the organization.

Strike group corporate memory today is cyclical and tied to the influx and outflow of personnel in leadership and other key warfare billets. In many cases, individuals within the strike group must relearn lessons their predecessors learned in the previous deployment cycle. What is missing is the bridge between the corporate knowledge of the previous deployment cycle and the next.

The ability to keep the knowledge level high is a requirement during the FRP sustainment period. The KMO has a critical role in designing and building that sustainment plan. Simple things such as creating a knowledge repository for turnover or interviewing individuals with recent strike group operational experience are some methods to maintain corporate knowledge.

When knowledge is captured, it must be relayed to those who need it. It should also be stored for easy recovery and knowledge mining. Organizing the collection of information for easy retrieval by watchstanders or staff is necessary for maintaining and sharing corporate knowledge.

Building a best practices repository focused on strike group exercises and operations is also beneficial. Along with the tactical training community, KMOs afloat must work to build a sustainable network between strike groups to share, enhance and improve best practices across the fleet.

There is much work to do in this area and with the increased FRP readiness plateau, it will be increasingly important for strike groups to share, maintain and enhance corporate memory.

Recommendations

A recommendation is for the Naval Network Warfare Command (NETWARCOM) to serve as the fleet KM lead and consolidate a KM best practices repository, tailored toward the afloat environment. This repository should be managed by someone in the tactical training cycle to be shared with all strike groups as they work up for deployments.

Another recommendation is to designate the commanders of the Strike Force Training Atlantic and Pacific commands as the keepers of afloat tactical best practices given their role in the FRP and tactical development of the strike groups.

Next Steps: Knowledge Fusion

As the Navy proceeds along the transformation path toward the Sea Power 21 vision, KM afloat competencies become even more critical. Realizing the knowledge edge will be the differentiator between our Navy and any adversary.

With increasing competition for resources to meet all the missions for ships at sea, leadership must have the right knowledge to determine where and when to place platforms and sensors to destabilize an adversary's center of gravity.

"KM is the responsibility of all levels of management, and managers must be courageous enough to look for the knowledge edge."

KM facilitates manpower efficiencies, and it is needed if the Navy is to succeed in transformation and to achieve future capabilities, such as FORCEnet. The assignment of Information Professionals as staff knowledge managers is an excellent start and must be fully exploited. However, it is important to note that KM is the responsibility of all levels of management, and managers must be courageous enough to look for the knowledge edge.

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